I. Amendments to the Claims

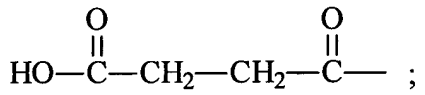
This listing of claims replaces without prejudice all prior versions, and listings, of claims in the present application.

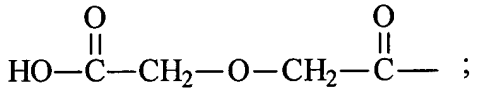
Listing of Claims:

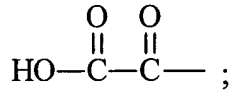
1. (Currently Amended) A reusable linker arm for solid support oligonucleotide synthesis, the linker arm consisting of the following formula:

Z—O—T〰[SUPPORT]

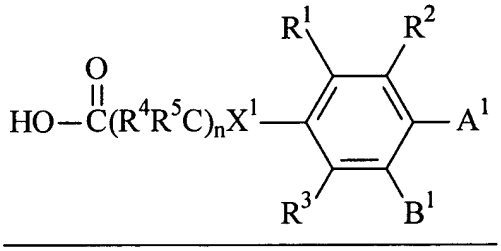
wherein Z is ~~a linker moiety~~ selected from the group consisting of:



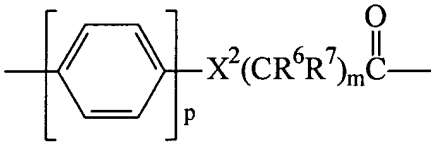




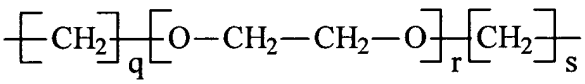
and



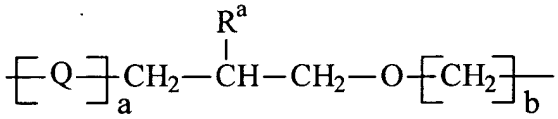
wherein: R^1, R^2 and R^3 are the same or different and are selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; R^4 and R^5 are the same or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; X^1 is selected from the group consisting of -O-, -S-, -C(O)-, -$S(O)_2$- and -N(R)-; R is selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; n is 0, 1 or 2; and one of A^1 and B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, and the other of A^1 and B^1 has the formula:



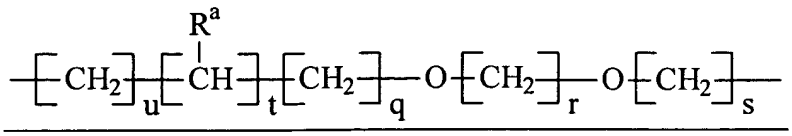
wherein p is 0 or 1, X^2 is selected from the group consisting of -O-, -S-, -C(O)-, -$S(O)_2$- and -N(R)-, R is selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, R^6 and R^7 are the same or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, and m is 0, 1 or 2; and T has the formula:



wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200 or T has the formula:



wherein a is 0 or 1, ~~Q is an organic moiety,~~ R^a is selected from -OH, -NH_2, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40, and Q is a moiety having the formula:



wherein q, r, s, t and u are the same or different and each is an integer having a value of 0-40 and R^a is selected from the group consisting of hydrogen, hydroxyl, a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy-containing group, a C_2-C_{40} acrylate-containing group, a C_5-C_{40} alkylaryl group, $-NH_2$, -NHR and -OR, wherein R is a protecting group.

2. (Cancelled).

3. (Cancelled).

4. (Cancelled).

5. (Cancelled).

6. (Cancelled).

7. (Cancelled).

8. (Cancelled).

9. (Cancelled).

10. (Cancelled).

11. (Cancelled).

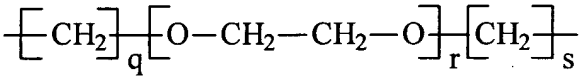
12. (Cancelled).

13. (Cancelled).

14. (Cancelled).

15. (Cancelled).

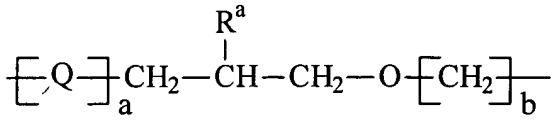
16. (Previously amended) The reusable linker arm defined in claim 1, wherein T has the formula:



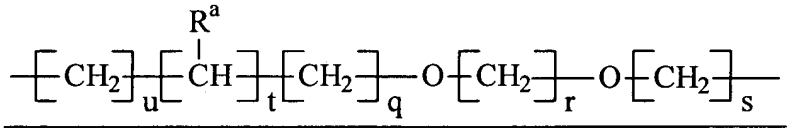
wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200.

17. (Original) The reusable linker arm defined in claim 16, wherein q and s are the same or different and each is an integer having a value of 1-20 and r is an integer having a value of 1-150.

18. (Currently Amended) The reusable linker arm defined in claim 1, wherein T has the formula:



wherein a is 0 or 1, ~~Q is an organic moiety,~~ R^a is selected from -OH, $-NH_2$, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40, and Q is a moiety having the formula:



wherein q, r, s, t and u are the same or different and each is an integer having a value of 0-40 and R^a is selected from the group consisting of hydrogen, hydroxyl, a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy-containing group, a C_2-C_{40} acrylate-containing group, a C_5-C_{40} alkylaryl group, $-NH_2$, -NHR and -OR, wherein R is a protecting group.

19. (Previously Amended) The reusable linker arm defined in claim 18, wherein a is 0 and R^a is -OH.

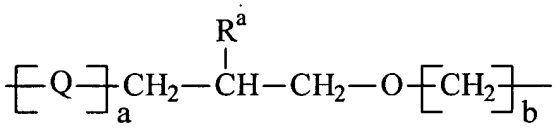
20. (Original) The reusable linker arm defined in claim 18, wherein a is 1 and R^a is -NR or -OR.

21. (Previously Amended) The reusable linker arm defined in claim 18, wherein the protecting group is selected from the group consisting of acetyl, chloroacetyl, methoxyacetyl, t-butyl phenoxyacetyl, phenoxyacetyl, trityl, methoxytrityl, dimethoxytrityl (DMT), dialkylphosphite, pivalyl-isobutyloxycarbonyl, *t*-butyldimethylsilyl, 9-phenylxanthen-9-yl (pixyl), tetrahydropyranyl, methoxytetrahydropyranyl, methoxymethyl, benzyloxymethyl, methoxyethoxymethyl, methylthiomethyl, dialkylphosphate, levulinyl, dimethylphenylsilyl, trimethylsilyl, isopropyl-dimethylsilyl, diisopropylmethylsilyl, diethylisopropylsilyl, triisopropylsilyl, benzoyl, pivaloyl, trifluoroacetyl, allyl, benzyl, o-nitrobenzyl, o-hydroxystyryldimethylsilyl, 2-oxo-1,2-diphenylethyl, allyloxycarbonyl, monomethoxymethyl, nitroveratryloxycarbonyl, dimethoxybenzoin, dimethoxybenzoin carbonate, methylnitropiperonyl carbonate, fluorenyl-methoxycarbonyl, 2-phenylsulfonyl-ethoxycarbony, fluorophenyl-methoxypiperidinyl and mixtures thereof.

22. (Cancelled).

23. (Currently Amended) The reusable linker arm defined in claim ~~22~~ 1, wherein s is 0, q, r and u are the same or different and each is an integer having a value of 1-10, t is an integer of 1-5 and R^a is hydroxyl.

24. (Currently Amended) The reusable linker arm defined in ~~claims 1-15~~ claim 1, wherein T has the formula:



wherein a is 0 or 1, Q is an organic moiety, R^a is selected from -OH, $-NH_2$, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40.

25. (Previously Amended) The reusable linker arm defined in claim 24, wherein a is 0 and R^a is -OH.

26. (Original) The reusable linker arm defined in claim 24, wherein a is 1 and R^a is -NR or -OR.

27. (Cancelled).

28. (Cancelled).

29. (Cancelled).

30. (Cancelled).

31. (Cancelled)

32. (Cancelled).

33. (Cancelled).

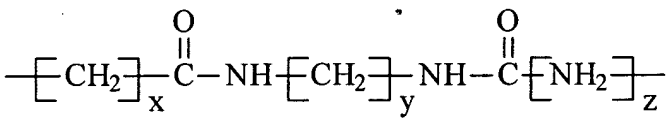
34. (Cancelled).

35. (Cancelled).

36. (Currently Amended) The reusable linker arm defined in claim ~~27~~ 18, wherein the organic moiety is unsubstituted.

37. (Currently Amended) The reusable linker arm defined in claim ~~27~~ 18, wherein the organic moiety is substituted by at least one moiety selected from the group consisting of a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy-containing group, a C_2-C_{40} acrylate-containing group and a C_5-C_{40} alkylaryl group.

38. (Original) The reusable linker arm defined in claim 18, wherein Q has the formula:



wherein each of x, y and z is an integer having a value of 1-40.

39. (Cancelled).

40. (Cancelled).

41. (Cancelled).

42. (Cancelled).

43. (Currently Amended) The reusable linker arm defined in claim ~~42~~ 1, wherein p is 0.

44. (Currently Amended) The reusable linker arm defined in claim ~~42~~ 1, wherein B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5- C_{40} alkylaryl group.

45. (Currently Amended) The reusable linker arm defined in claim ~~42~~ 1, wherein each of R^4, R^5, R^6 and R^7 is hydrogen.

46. (Currently Amended) The reusable linker arm defined in claim ~~42~~ 1, wherein each of m and n are 1.

47. (Currently Amended) The reusable linker arm defined in claim ~~42~~ 1, wherein each of R^1, R^2 and R^3 is hydrogen.

48. (Currently Amended) The reusable linker arm defined in claim ~~42~~ 1, wherein X^1 and X^2 are both -O-.

49. (Previously Amended) The reusable linker arm defined in claim 1, wherein SUPPORT is an inorganic substance.

50. (Original) The reusable linker arm defined in claim 49, wherein the inorganic substance is selected from the group consisting of silica, glass beads, porous glass, aluminosilicates, borosilicates, metal oxides, clays and mixtures thereof.

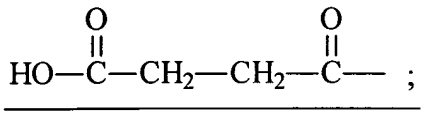
51. (Previously Amended) The reusable linker arm defined in claim 1, wherein SUPPORT is an organic substance.

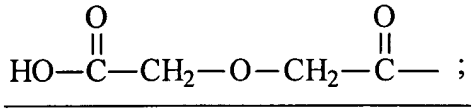
52. (Original) The reusable linker arm defined in claim 51, wherein the organic substance is a cross-linked polymer.

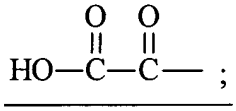
53. (Currently Amended) A reusable linker arm for solid support oligonucleotide synthesis, the linker arm consisting of the following formula:

NUCLEOSIDE—Z—O—T〰[SUPPORT]

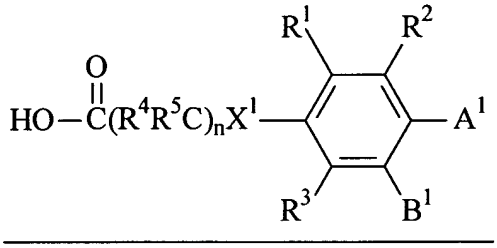
wherein Z is ~~a linker moiety~~ selected from the group consisting of:





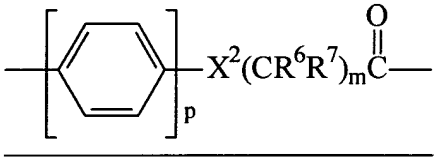


and

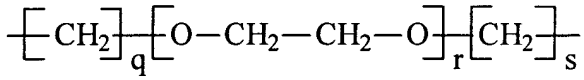


wherein: R^1, R^2 and R^3 are the same or different and are selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; R^4 and R^5 are the same or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; X^1 is selected from the group consisting of -O-, -S-, -C(O)-,

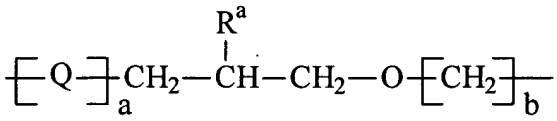
-$S(O)_2$- and -N(R)-; R is selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; n is 0, 1 or 2; and one of A^1 and B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, and the other of A^1 and B^1 has the formula:



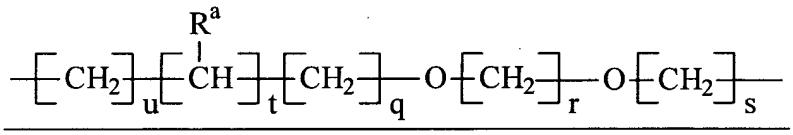
wherein p is 0 or 1, X^2 is selected from the group consisting of -O-, -S-, -C(O)-, -$S(O)_2$- and -N(R)-, R is selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, R^6 and R^7 are the same or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, and m is 0, 1 or 2; and T has the formula:



wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200 or T has the formula:



wherein a is 0 or 1, ~~Q is an organic moiety,~~ R^a is selected from -OH, $-NH_2$, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40, and Q is a moiety having the formula:



wherein q, r, s, t and u are the same or different and each is an integer having a value of 0-40 and R^a is selected from the group consisting of hydrogen, hydroxyl, a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy-containing group, a C_2-C_{40} acrylate-containing group, a C_5-C_{40} alkylaryl group, $-NH_2$, -NHR and -OR, wherein R is a protecting group.

54. (Cancelled).

55. (Cancelled).

56. (Cancelled).

57. (Cancelled).

58. (Cancelled).

59. (Cancelled).

60. (Cancelled).

61. (Cancelled).

62. (Cancelled).

63. (Cancelled).

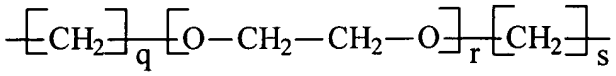
64. (Cancelled).

65. (Cancelled).

66. (Cancelled).

67. (Cancelled).

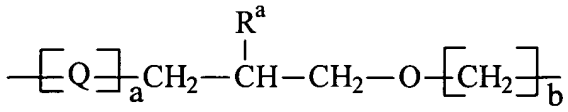
68. (Previously Amended) The reusable linker arm defined in claim 53, wherein T has the formula:



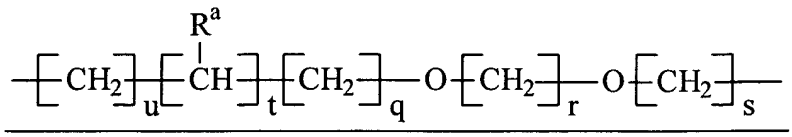
wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200.

69. (Original) The reusable linker arm defined in claim 68, wherein q and s are the same or different and each is an integer having a value of 1-20 and r is an integer having a value of 1-150.

70. (Currently Amended) The reusable linker arm defined in claim 53, wherein T has the formula:



wherein a is 0 or 1, ~~Q is an organic moiety,~~ R^a is selected from -OH, $-NH_2$, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40, and Q is a moiety having the formula:



wherein q, r, s, t and u are the same or different and each is an integer having a value of 0-40 and R^a is selected from the group consisting of hydrogen, hydroxyl, a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy-containing group, a C_2-C_{40} acrylate-containing group, a C_5-C_{40} alkylaryl group, $-NH_2$, -NHR and -OR, wherein R is a protecting group.

71. (Previously Amended) The reusable linker arm defined in claim 70, wherein a is 0 and R^a is -OH.

72. (Original) The reusable linker arm defined in claim 70, wherein a is 1 and R^a is -NR or -OR.

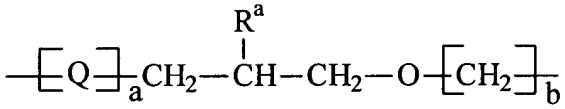
73. (Currently Amended) The reusable linker arm defined in claim 70, wherein the protecting group is selected from the group consisting of acetyl, chloroacetyl, methoxyacetyl, t-butyl phenoxyacetyl, trityl, methoxytrityl, dimethoxytrityl (DMT), dialkylphosphite, pivalyl-isobutyloxycarbonyl, *t*-butyldimethylsilyl, phenoxyacetal, 9-phenylxanthen-9-yl (pixyl), tetrahydropyranyl, methoxytetrahydropyranyl, methoxymethyl, benzyloxymethyl, methoxyethoxymethyl, methylthiomethyl, dialkylphosphate, levulinyl, dimethylphenylsilyl,

trimethylsilyl, isopropyl-dimethylsilyl, diisopropylmethylsilyl, diethylisopropylsilyl, triisopropylsilyl, benzoyl, pivaloyl, trifluoroacetyl, allyl, benzyl, o-nitrobenzyl, o-hydroxystyryldimethylsilyl, 2-oxo-1,2-diphenylethyl, allyloxycarbonyl, monomethoxymethyl, nitroveratryloxycarbonyl, dimethoxybenzoin, dimethoxybenzoin carbonate, methylnitropiperonyl carbonate, fluorenyl-methoxycarbonyl, 2-phenylsulfonyl-ethoxycarbony, fluorophenyl-methoxypiperidinyl and mixtures thereof.

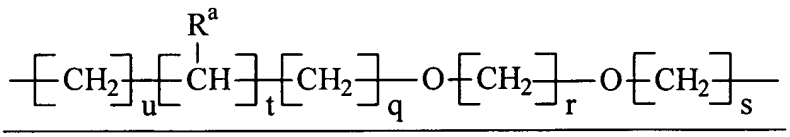
74. (Cancelled)

75. (Currently Amended) The reusable linker arm defined in claim ~~74~~ 70, wherein s is 0, q, r and u are the same or different and each is an integer having a value of 1-10, t is an integer of 1-5 and R^a is hydroxyl.

76. (Currently Amended) The reusable linker arm defined in claim 70, wherein T has the formula:



wherein a is 0 or 1, ~~Q is an organic moiety,~~ R^a is selected from -OH, $-NH_2$, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40, and Q is a moiety having the formula:



wherein q, r, s, t and u are the same or different and each is an integer having a value of 0-40 and R^a is selected from the group consisting of hydrogen, hydroxyl, a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy-containing group, a C_2-C_{40} acrylate-containing group, a C_5-C_{40} alkylaryl group, $-NH_2$, -NHR and -OR, wherein R is a protecting group.

77. (Previously Amended) The reusable linker arm defined in claim 76, wherein a is 0 and R^a is -OH.

78. (Original) The reusable linker arm defined in claim 76, wherein a is 1 and R^a is -NR or -OR.

79. (Cancelled).

80. (Cancelled).

81. (Cancelled).

82. (Cancelled).

83. (Cancelled).

84. (Cancelled).

85. (Cancelled).

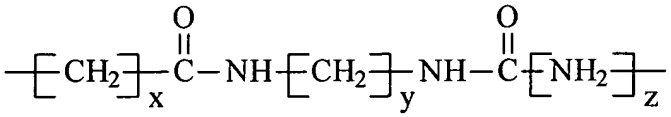
86. (Cancelled).

87. (Cancelled).

88. (Previously Amended) The reusable linker arm defined in claim 76, wherein the organic moiety is unsubstituted.

89. (Currently Amended) The reusable linker arm defined in claim 76, wherein the organic moiety is substituted by at least one moiety selected from the group ~~comprising~~ consisting of a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy group, a C_2-C_{40} acrylate group and a C_5-C_{40} alkylaryl group.

90. (Original) The reusable linker arm defined in claim 53, wherein Q has the formula:



wherein each of x, y and z is an integer having a value of 1-40.

91. (Cancelled).

92. (Cancelled).

93. (Cancelled).

94. (Cancelled).

95. (Currently Amended) The reusable linker arm defined in claim ~~94~~ 53, wherein p is 0.

96. (Currently Amended) The reusable linker arm defined in claim ~~94~~ 53, wherein B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-1 C_{40} alkylaryl group.

97. (Currently Amended) The reusable linker arm defined in claim ~~94~~ 53, wherein each of R^4, R^5, R^6 and R^7 is hydrogen.

98. (Currently Amended) The reusable linker arm defined in claim ~~94~~ 53, wherein each of m and n are 1.

99. (Currently Amended) The reusable linker arm defined in claim ~~94~~ 53, wherein each of R^1, R^2 and R^3 is hydrogen.

100. (Currently Amended) The reusable linker arm defined in claim ~~94~~ 53, wherein X^1 and X^2 are both -O-.

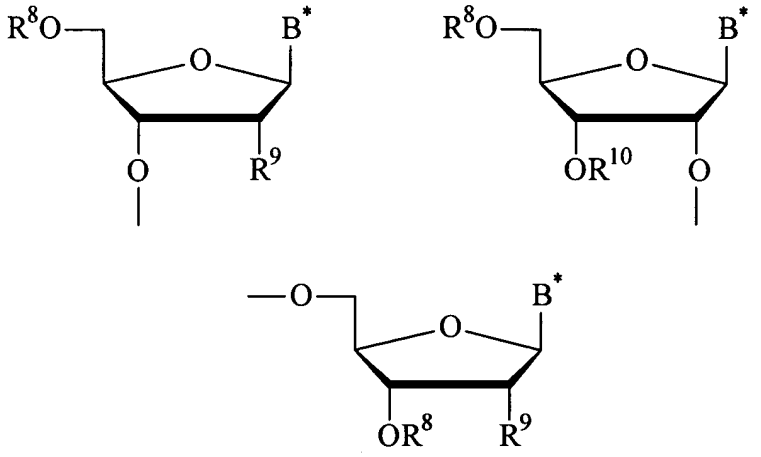
101. (Previously Amended) The reusable linker arm defined in claim 53, wherein SUPPORT is an inorganic substance.

102. (Original) The reusable linker arm defined in claim 101, wherein the inorganic substance is selected from the group consisting of silica, glass beads, porous glass, aluminosilicates, borosilicates, metal oxides, clays and mixtures thereof.

103. (Previously Amended) The reusable linker arm defined in claim 53, wherein SUPPORT is an organic substance.

104. (Original) The reusable linker arm defined in claim 103, wherein the organic substance is a cross-linked polymer.

105. (Previously Amended) The reusable linker arm defined in claim 53, wherein NUCLEOSIDE is a moiety selected from one of the following formulae:

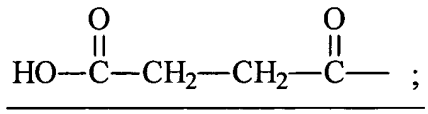


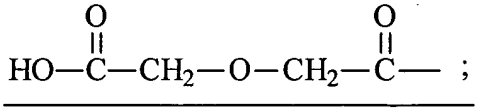
wherein R^8 and R^{10} are the same or different and are hydrogen or a protecting group, R^9 is hydrogen or $-OR^{11}$ wherein R^{11} is hydrogen or a protecting group, and B^* is a nucleic acid base.

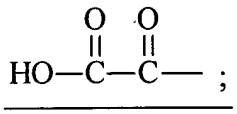
106. (Currently Amended) A process for production of a reusable linker arm for oligonucleotide synthesis having the following formula:

Z—O—T〰[SUPPORT]

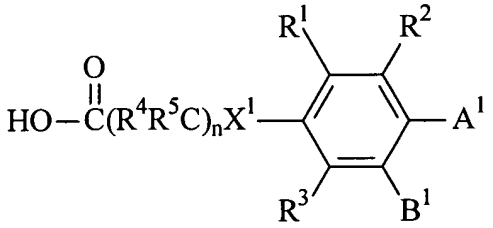
wherein Z is ~~a linker moiety~~ selected from the group consisting of:





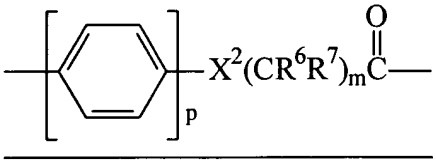


and

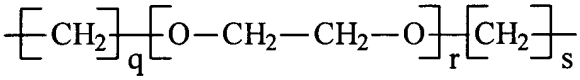


wherein: R^1, R^2 and R^3 are the same or different and are selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; R^4 and R^5 are the same or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; X^1 is selected from the group consisting of -O-, -S-, -C(O)-, -$S(O)_2$- and -N(R)-; R is selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; n is 0, 1 or 2; and one of A^1 and B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted

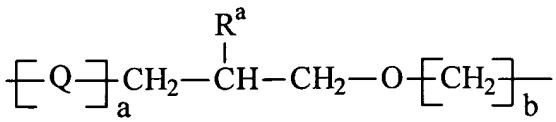
or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, and the other of A^1 and B^1 has the formula:



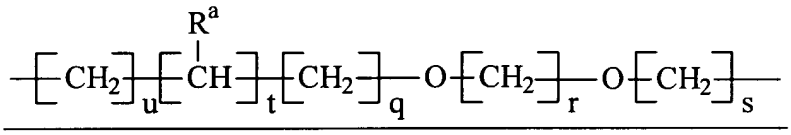
wherein p is 0 or 1, X^2 is selected from the group consisting of -O-, -S-, -C(O)-, -$S(O)_2$- and -N(R)-, R is selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, R^6 and R^7 are the same or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, and m is 0, 1 or 2; and T has the formula:



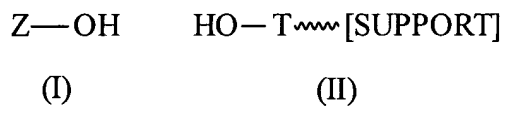
wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200 or T has the formula:



wherein a is 0 or 1, ~~Q is an organic moiety,~~ R^a is selected from -OH, $-NH_2$, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40; and Q is a moiety having the formula:



wherein q, r, s, t and u are the same or different and each is an integer having a value of 0-40 and R^a is selected from the group consisting of hydrogen, hydroxyl, a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy-containing group, a C_2-C_{40} acrylate-containing group, a C_5-C_{40} alkylaryl group, $-NH_2$, -NHR and -OR, wherein R is a protecting group, the process comprising the step of reacting together the compound of Formulae I and II:



(I) (II)

wherein Z and T are as defined above.

107. (Cancelled).

108. (Cancelled).

109. (Cancelled).

110. (Cancelled).

111. (Cancelled).

112. (Cancelled).

113. (Cancelled).

114. (Cancelled).

115. (Cancelled).

116. (Cancelled).

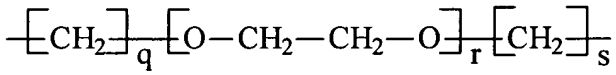
117. (Cancelled).

118. (Cancelled).

119. (Previously Amended) The process defined in claim 106, wherein the organic moiety is unsubstituted.

120. (Previously Amended) The process defined in claim 106, wherein the organic moiety is substituted by at least one moiety selected from the group consisting of a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy-containing group, a C_2-C_{40} acrylate-containing group and a C_5-C_{40} alkylaryl group.

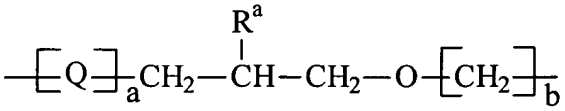
121. (Previously Amended) The process defined in claim 106, wherein T has the formula:



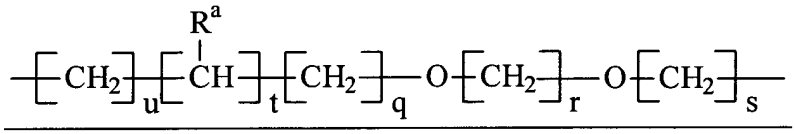
wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200.

122. (Original) The process defined in claim 121, wherein q and s are the same or different and each is an integer having a value of 1-20 and r is an integer having a value of 1-150.

123. (Currently Amended) The process defined in claim 106, wherein T has the formula:



wherein a is 0 or 1, ~~Q is an organic moiety,~~ R^a is selected from -OH, $-NH_2$, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40, and Q is a moiety having the formula:



wherein q, r, s, t and u are the same or different and each is an integer having a value of 0-40 and R^a is selected from the group consisting of hydrogen, hydroxyl, a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy-containing group, a C_2-C_{40} acrylate-containing group, a C_5-C_{40} alkylaryl group, $-NH_2$, -NHR and -OR, wherein R is a protecting group.

124. (Previously Amended) The reusable linker arm defined in claim 123, wherein a is 0 and R^a is -OH.

125. (Original) The reusable linker arm defined in claim 123, wherein a is 1 and R^a is -NR or -OR.

126. (Previously Amended) The process defined in claim 123, wherein the protecting group is selected from the group consisting of acetyl, chloroacetyl, methoxyacetyl, t-butyl phenoxyacetyl, trityl, methoxytrityl, dimethoxytrityl (DMT), dialkylphosphite, pivalyl-isobutyloxycarbonyl,

t-butyldimethylsilyl, phenoxyacetal, 9-phenylxanthen-9-yl (pixyl), tetrahydropyranyl, methoxytetrahydropyranyl, methoxymethyl, benzyloxymethyl, methoxyethoxymethyl, methylthiomethyl, dialkylphosphate, levulinyl, dimethylphenylsilyl, trimethylsilyl, isopropyl-dimethylsilyl, diisopropylmethylsilyl, diethylisopropylsilyl, triisopropylsilyl, benzoyl, pivaloyl, trifluoroacetyl, allyl, benzyl, o-nitrobenzyl, o-hydroxystyryldimethylsilyl, 2-oxo-1,2-diphenylethyl, allyloxycarbonyl, monomethoxymethyl, nitroveratryloxycarbonyl, dimethoxybenzoin, dimethoxybenzoin carbonate, methylnitropiperonyl carbonate, fluorenyl-methoxycarbonyl, 2-phenylsulfonyl-ethoxycarbony, fluorophenyl-methoxypiperidinyl and mixtures thereof.

127. (Cancelled).

128. (Cancelled).

129. (Cancelled).

130. (Cancelled).

131. (Currently Amended) The process defined in claim ~~130~~ 106, wherein p is 0.

132. (Currently Amended) The process defined in claim ~~130~~ 106, wherein B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5- C_{40} alkylaryl group.

133. (Currently Amended) The process defined in claim ~~130~~ 106, wherein each of R^4, R^5, R^6 and R^7 is hydrogen.

134. (Currently Amended) The process defined in claim ~~130~~ 106, wherein each of m and n are 1.

135. (Currently Amended) The process defined in claim ~~130~~ 106, wherein each of R^1, R^2 and R^3 is hydrogen.

136. (Currently Amended) The process defined in claim ~~130~~ 106, wherein X^1 and X^2 are both -O-.

137. (Currently Amended) The process defined in claim ~~130~~ 106, wherein SUPPORT is an inorganic substance.

138. (Original) The process defined in claim 137, wherein the inorganic substance is selected from the group consisting of silica, glass beads, porous glass, aluminosilicates, borosilicates, metal oxides, clays and mixtures thereof.

139. (Previously Amended) The process defined in claim 106, wherein SUPPORT is an organic substance.

140. (Original) The process defined in claim 139, wherein the organic substance is a cross-linked polymer.

141. (Previously Amended) The process defined in claim 106, wherein the process is conducted in the presence of an activating agent.

142. (Currently Amended) The process defined in claim 141, wherein the activating agent ~~comprises at least one member~~ is selected from the group consisting of an acid chloride; an active ester ~~(e.g., nitrophenyl, nitrophenylthio, trichlorophenyl, trifluorophenyl, pentachlorophenyl, penta-fluorophenyl, or 3-hydroxy-2,3-dihydro-4-oxo-benzotriazine esters)~~; an active hydroxylamine ester ~~(e.g., N-hydroxyphthalimide or N-hydroxysuccinimide)~~; acid anhydride and mixed anhydride.

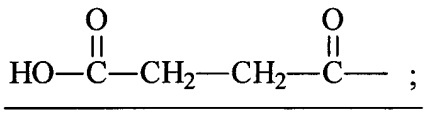
143. (Currently Amended) The process defined in claim 141, wherein the activating agent is selected from the group consisting of arylsulfonyl chlorides ~~(e.g., benzenesulfonyl chloride (BS-Cl), mesitylenesulfonyl chloride (MS-Cl), triisopropylsulfonylchloride (TPS-Cl))~~; active arylsulfonyl esters ~~(e.g., imidazole, triazole, nitrotriazole, or tetrazole esters of BS-Cl, MS-Cl or TPS-Cl)~~; 2-ethoxy-1-(ethoxycarbonyl)-1,2-dihydroquinoline (EEDQ); acyl carbonates; 1,1'-(carbonyldioxy)dibenzotriazoles; chlorotri-methyl-silane; carbodiimides ~~(e.g., dicyclohexylcarbodiimide (DCC), 1-(3-dimethylaminopropyl)-ethylcarbodiimide (DEC), diisopropylcarbodiimide (DIC))~~ either alone or in combination with auxillary nucleophiles ~~(e.g., 1-hydroxybenzotriazole (HOBt), 1-hydroxy-7-azabenzotriazole (HOAt), N-hydroxysuccinimide (HOSu), or 3-hydroxy-3,4-dihydro-1,2,3-benzotriazin-4-one (HOObt))~~ and/or catalysts ~~(e.g., 4-dimethylaminopyridine (DMAP) or N-methylimidazole (NMI))~~; or uronium salts ~~(e.g., tetramethyluronium chloride (TMU-Cl), 2-(1H-benzotriazol-1-yl)-1,1,3,3-tetramethyluronium hexafluorophosphate (HBTU), 2-(1H-benzotriazol-1-yl)-1,1,3,3-tetramethyluronium~~

~~tetrafluoroborate (TBTU), 2-succinimido-1,1,3,3-tetramethyluronium tetra-fluoroborate (TSTU), 2-(3,4-dihydro-4-oxo-1,2,3-benzotriazin-3-yl)-1,1,3,3-tetramethyluronium tetrafluoroborate (TDBTU), 2-(2-oxo-1(2H)-pyridyl-1,1,3,3-tetramethyluronium tetrafluoro-borate (TPTU), 2-(5-norbornene-2,3-dicarboximido)-1,1,3,3-tetramethyluronium tetrafluoro-borate (TNTU), O-(7-azabenzotriazol-1-yl)-1,3-dimethyl-1,3-dimethyleneuronium hexa-fluorophosphate (HAMDU), O-(7-azabenzotriazol-1-yl)-1,3-dimethyl-1,3-tri-methyleneuronium hexafluoro-phosphate (HAMTU), O-(7-azabenzotriazol-1-yl)-1,1,3,3-bis(pentamethylene)uronium hexa-fluoro-phosphate (HAPipU), O-(7-azabenzotriazol-1-yl)-1,1,3,3-bis(tetramethylene)uronium hexafluorophosphate (HAPyU), O-(7-azabenzotriazol-1-yl)-1,1,3,3-tetramethyluronium hexafluorophosphate (HATU)) either alone or in combination with auxillary nucleophiles (i.e., 1-hydroxybenzotriazole (HOBt), 1-hydroxy-7-azabenzotriazole (HOAt), N-hydroxysuccinimide (HOSu), or 3-hydroxy-3,4-dihydro-1,2,3-benzotriazin-4-one (HOObt)) and/or~~ a catalyst ~~catalysts (e.g., 4-dimethylaminopyridine (DMAP) or N-methylimidazole (NMI))~~ or phosphonium salts ~~(e.g., benzotriazol-1-yl-oxytris(dimethylamino)phosphonium hexafluorophosphate (BOP), benzotriazole-1-yl-oxy-trispyrrolidinophosphonium hexafluorophosphate (PyBOP), 2-(benzotriazol-1-yl)oxy-1,3-dimethylimidazolidinium hexafluorophosphate (BOI), bromo tris(pyrrolidino)phosphonium hexafluorophosphate (PyBroP), 7-azabenzotriazol-1-yloxytris-(dimethylamino)phosphonium hexafluorophosphate (AOP), and 7-azabenzotriazol-1-yloxytris(pyrrolidino)phosphonium hexafluorophosphate (PyAOP))~~, mixtures thereof and mixtures thereof with auxillary nucleophiles ~~and mixtures thereof with catalysts~~.

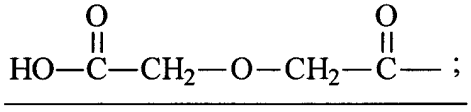
144. (Currently Amended) A process for production of a reusable linker arm for oligonucleotide synthesis having the following formula:

NUCLEOSIDE—Z—O—T〰[SUPPORT]

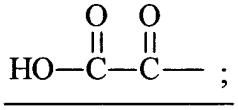
wherein Z is ~~a linker moiety~~ selected from the group consisting of:



;

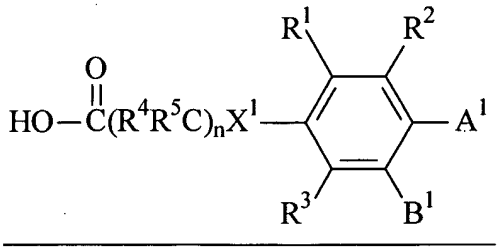


;

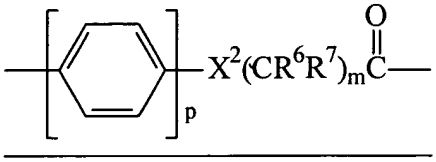


;

and

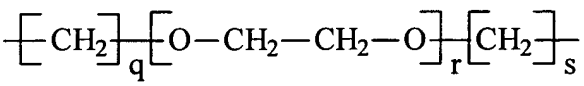


wherein: R^1, R^2 and R^3 are the same or different and are selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; R^4 and R^5 are the same or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; X^1 is selected from the group consisting of -O-, -S-, -C(O)-, $-S(O)_2-$ and -N(R)-; R is selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; n is 0, 1 or 2; and one of A^1 and B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, and the other of A^1 and B^1 has the formula:

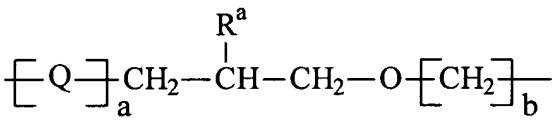


wherein p is 0 or 1, X^2 is selected from the group consisting of -O-, -S-, -C(O)-, $-S(O)_2-$ and -N(R)-, R is selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-

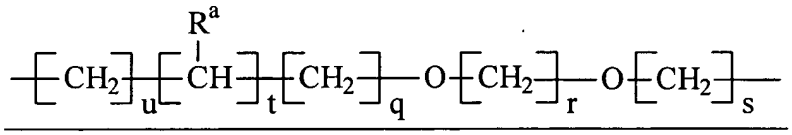
C_{40} alkylaryl group, R^6 and R^7 are the same or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, and m is 0, 1 or 2; and T has the formula:



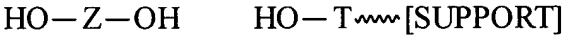
wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200 or T has the formula:



wherein a is 0 or 1, ~~Q is an organic moiety,~~ R^a is selected from -OH, $-NH_2$, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40, and Q is a moiety having the formula:



wherein q, r, s, t and u are the same or different and each is an integer having a value of 0-40 and R^a is selected from the group consisting of hydrogen, hydroxyl, a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy-containing group, a C_2-C_{40} acrylate-containing group, a C_5-C_{40} alkylaryl group, $-NH_2$, -NHR and -OR, wherein R is a protecting group, the process comprising the step of reacting together the compounds of Formulae I, II and III:



(I) (II)

(III)

wherein Z and T are as defined above.

145. (Cancelled).

146. (Cancelled).

147. (Cancelled).

148. (Cancelled).

149. (Cancelled).

150. (Cancelled).

151. (Cancelled).

153. (Cancelled).

154. (Cancelled).

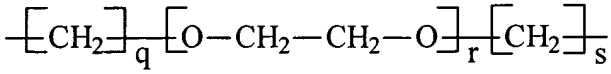
155. (Cancelled).

156. (Cancelled).

157. (Previously Amended) The process defined in claim 144, wherein the organic moiety is unsubstituted.

158. (Previously Amended) The process defined in claim 144, wherein the organic moiety is substituted by at least one moiety selected from the group consisting of a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy group, a C_2-C_{40} acrylate group and a C_5-C_{40} alkylaryl group.

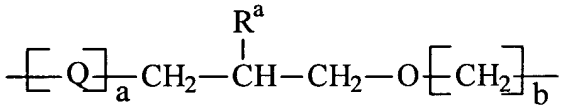
159. (Previously Amended) The process defined in claim 144, wherein T has the formula:



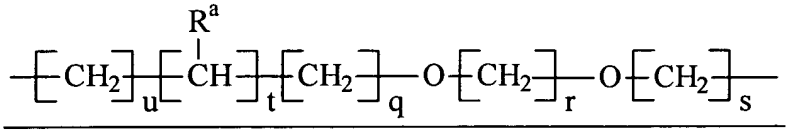
wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200.

160. (Original) The process defined in claim 159, wherein q and s are the same or different and each is an integer having a value of 1-20 and r is an integer having a value of 1-150.

161. (Currently Amended) The process defined in claim 144-~~158~~, wherein T has the formula:



wherein a is 0 or 1, Q is an organic moiety, R^a is selected from -OH, $-NH_2$, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40, and Q is a moiety having the formula:



wherein q, r, s, t and u are the same or different and each is an integer having a value of 0-40 and R^a is selected from the group consisting of hydrogen, hydroxyl, a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy-containing group, a C_2-C_{40}

acrylate-containing group, a C_5-C_{40} alkylaryl group, -NH_2, -NHR and -OR, wherein R is a protecting group.

162. (Previously Amended) The reusable linker arm defined in claim 161, wherein a is 0 and R^a is -OH.

163. (Original) The reusable linker arm defined in claim 161, wherein a is 1 and R^a is -NR or -OR.

164. (Previously Amended) The process defined in claim 161, wherein the protecting group is selected from the group consisting of acetyl, chloroacetyl, methoxyacetyl, t-butyl phenoxyacetyl, trityl, methoxytrityl, dimethoxytrityl (DMT), dialkylphosphite, pivalyl-isobutyloxycarbonyl, *t*-butyldimethylsilyl, phenoxyacetal, 9-phenylxanthen-9-yl (pixyl), tetrahydropyranyl, methoxytetrahydropyranyl, methoxymethyl, benzyloxymethyl, methoxyethoxymethyl, methylthiomethyl, dialkylphosphate, levulinyl, dimethylphenylsilyl, trimethylsilyl, isopropyl-dimethylsilyl, diisopropylmethylsilyl, diethylisopropylsilyl, triisopropylsilyl, benzoyl, pivaloyl, trifluoroacetyl, allyl, benzyl, o-nitrobenzyl, o-hydroxystyryldimethylsilyl, 2-oxo-1,2-diphenylethyl, allyloxycarbonyl, monomethoxymethyl, nitroveratryloxycarbonyl, dimethoxybenzoin, dimethoxybenzoin carbonate, methylnitropiperonyl carbonate, fluorenyl-methoxycarbonyl, 2-phenylsulfonyl-ethoxycarbony, fluorophenyl-methoxypiperidinyl and mixtures thereof.

165. (Cancelled).

166. (Cancelled).

167. (Cancelled).

168. (Cancelled).

169. (Currently Amended) The process defined in claim ~~168~~ 144, wherein p is 0.

170. (Currently Amended) The process defined in claim ~~168~~ 144, wherein B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group.

171. (Currently Amended) The process defined in claim ~~168~~ 144, wherein each of R^4, R^5, R^6 and R^7 is hydrogen.

172. (Currently Amended) The process defined in claim ~~168~~ 144, wherein each of m and n are 1.

173. (Currently Amended) The process defined in claim ~~168~~ 144, wherein each of R^1, R^2 and R^3 is hydrogen.

174. (Currently Amended) The process defined in claim ~~168~~ 144, wherein X^1 and X^2 are both -O-.

175. (Previously Amended) The process defined in claim 144, wherein SUPPORT is an inorganic substance.

176. (Original) The process defined in claim 175, wherein the inorganic substance is selected from the group consisting of silica, glass beads, porous glass, aluminosilicates, borosilicates, metal oxides, clays and mixtures thereof.

177. (Previously Amended) The process defined in claim 144, wherein SUPPORT is an organic substance.

178. (Oroginal) The process defined in claim 177, wherein the organic substance is a cross-linked polymer.

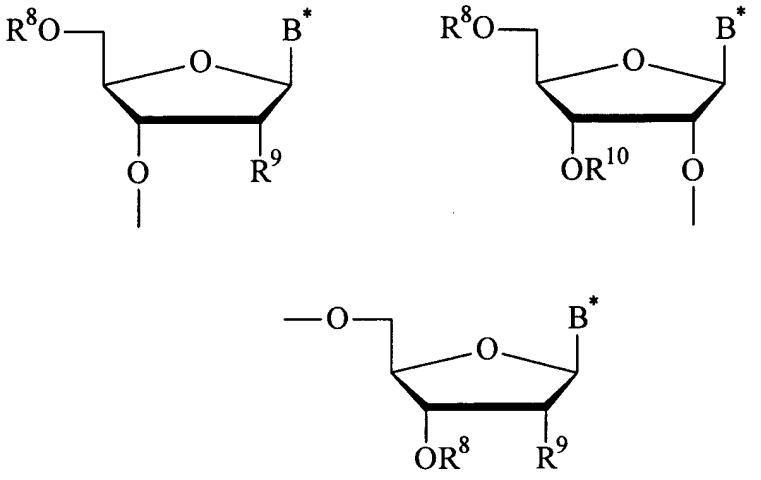
179. (Previously Amended) The process defined in claim 144, wherein the process is conducted in the presence of an activating agent.

180. (Currently Amended) The process defined in claim 179, wherein the ~~acitivating~~ activating agent comprises at least one member selected from the group consisting of an acid chloride; an active ester ~~(e.g., nitrophenyl, nitrophenylthio, trichlorophenyl, trifluorophenyl, pentachlorophenyl, penta-fluorophenyl, or 3-hydroxy-2,3-dihydro-4-oxo-benzotriazine esters)~~; an active hydroxylamine ester ~~(e.g., N-hydroxyphthalimide or N-hydroxysuccinimide)~~; acid anhydride and mixed anhydride.

181. (Currently Amended) The process defined in claim 179, wherein the activating agent is selected from the group consisting of arylsulfonyl chlorides ~~(e.g., benzenesulfonyl chloride (BS-Cl), mesitylenesulfonyl chloride (MS-Cl), triisopropylsulfonylchloride (TPS-Cl))~~; active arylsulfonyl esters ~~(e.g., imidazole, triazole, nitrotriazole, or tetrazole esters of BS-Cl, MS-Cl or TPS-Cl)~~; 2-ethoxy-1-(ethoxycarbonyl)-1,2-dihydroquinoline (EEDQ); acyl carbonates; 1,1'-(carbonyldioxy)dibenzotriazoles; chlorotri-methyl-silane; carbodiimides ~~(e.g., dicyclohexylcarbodiimide (DCC), 1-(3-dimethylaminopropyl)-ethylcarbodiimide (DEC), diisopropylcarbodiimide (DIC)) either alone or in combination with auxillary nucleophiles (e.g., 1-hydroxybenzotriazole (HOBt), 1-hydroxy-7-azabenzotriazole (HOAt), N-hydroxysuccinimide (HOSu), or 3-hydroxy-3,4-dihydro-1,2,3-benzotriazin-4-one (HOObt)) and/or catalysts (e.g., 4-dimethylaminopyridine (DMAP) or N-methylimidazole (NMI))~~; a catalyst or uronium salts ~~(e.g., tetramethyluronium chloride (TMU-Cl), 2-(1H-benzotriazol-1-yl)-1,1,3,3-tetramethyluronium hexafluorophosphate (HBTU), 2-(1H-benzotriazol-1-yl)-1,1,3,3-tetramethyluronium tetrafluoroborate (TBTU), 2-succinimido-1,1,3,3-tetramethyluronium tetra-fluoroborate (TSTU), 2-(3,4-dihydro-4-oxo-1,2,3-benzotriazin-3-yl)-1,1,3,3-tetramethyluronium tetrafluoroborate (TDBTU), 2-(2-oxo-1(2H)-pyridyl-1,1,3,3-tetramethyluronium tetrafluoro-borate (TPTU), 2-(5-norbornene-2,3-dicarboximido)-1,1,3,3-tetramethyluronium tetrafluoro-borate (TNTU), O-(7-azabenzotriazol-1-yl)-1,3-dimethyl-1,3-dimethyleneuronium hexa-fluorophosphate (HAMDU), O-(7-azabenzotriazol-1-yl)-1,3-dimethyl-1,3-tri-methyleneuronium hexafluoro-phosphate (HAMTU), O-(7-azabenzotriazol-1-yl)-1,1,3,3-bis(pentamethylene)uronium hexa-fluoro-phosphate (HAPipU), O-(7-azabenzotriazol-1-yl)-1,1,3,3-bis(tetramethylene)uronium hexafluorophosphate~~

~~(HAPyU), O-(7-azabenzotriazol-1-yl)-1,1,3,3-tetramethyluronium hexafluorophosphate (HATU))~~ ~~either alone or in combination with auxillary nucleophiles (i.e., 1-hydroxybenzotriazole (HOBt),~~ ~~1-hydroxy-7-azabenzotriazole (HOAt), N-hydroxysuccinimide (HOSu), or~~ ~~3-hydroxy-3,4-dihydro-1,2,3-benzotriazin-4-one (HOOBt))~~ ~~and/or catalysts (e.g.,~~ ~~4-dimethylaminopyridine (DMAP) or N-methylimidazole (NMI))~~ or phosphonium salts ~~(e.g.,~~ ~~benzotriazol-1-yl-oxytris(dimethylamino)phosphonium hexafluorophosphate (BOP),~~ ~~benzotriazole-1-yl-oxy-trispyrrolidinophosphonium hexafluorophosphate (PyBOP),~~ ~~2-(benzotriazol-1-yl)oxy-1,3-dimethylimidazolidinium hexafluorophosphate (BOI), bromo~~ ~~tris(pyrrolidino)phosphonium hexafluorophosphate (PyBroP),~~ ~~7-azabenzotriazol-1-yloxytris-(dimethylamino)phosphonium hexafluorophosphate (AOP), and~~ ~~7-azabenzotriazol-1-yloxytris(pyrrolidino)phosphonium hexafluorophosphate (PyAOP))~~, mixtures thereof and mixtures thereof with auxillary nucleophiles ~~and/or and mixtures thereof with catalysts~~.

182. (Previously Amended) The process defined in claim 144, wherein NUCLEOSIDE is a moiety selected from one of the following formulae:



wherein R^8 and R^{10} are the same or different and are hydrogen or a protecting group, R^9 is hydrogen or $-OR^{11}$ wherein R^{11} is hydrogen or a protecting group, and B^* is a nucleic acid base.

183. (Previously Amended) The process defined in claim 144, wherein the compounds of Formulae I and II are initially reacted to form a conjugate which is reacted with the compound of Formula III.

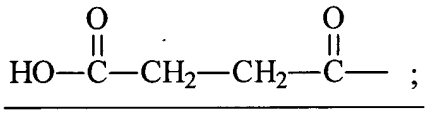
184. (Previously Amended) The process defined in claim 144, wherein compounds of Formulae I and III are initially reacted to form a conjugate which is reacted with the compound of Formula II.

185. (Currently Amended) A process for producing an oligonucleotide having a desired sequence comprising the steps of:

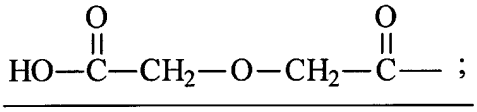
(i) reacting a linker arm having the formula:

NUCLEOSIDE—Z—O—T〰[SUPPORT]

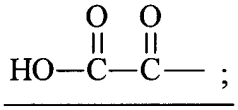
wherein Z is ~~a linker moiety~~ selected from the group consisting of:



;

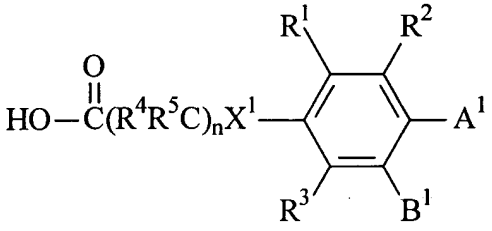


;



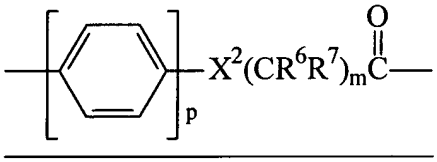
;

and



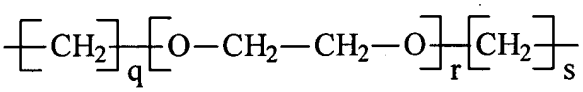
wherein: R^1, R^2 and R^3 are the same or different and are selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; R^4 and R^5 are the same

or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; X^1 is selected from the group consisting of -O-, -S-, -C(O)-, -$S(O)_2$- and -N(R)-; R is selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group; n is 0, 1 or 2; and one of A^1 and B^1 is selected from the group consisting of hydrogen, halide, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, and the other of A^1 and B^1 has the formula:

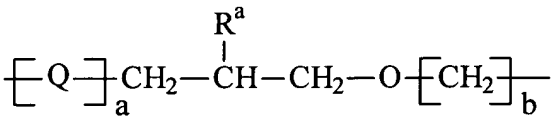


wherein p is 0 or 1, X^2 is selected from the group consisting of -O-, -S-, -C(O)-, -$S(O)_2$- and -N(R)-, R is selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, R^6 and R^7 are the same or different and are selected from the group consisting of hydrogen, a substituted or unsubstituted C_1-C_{20} alkyl group, a substituted or unsubstituted C_5-C_{30} aryl

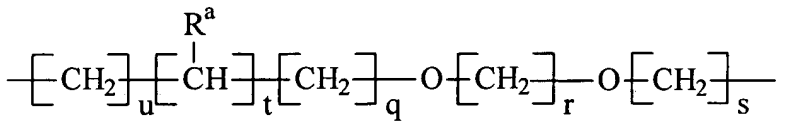
group and a substituted or unsubstituted C_5-C_{40} alkylaryl group, and m is 0, 1 or 2; and T has the formula:



wherein q and s are the same or different and each is an integer having a value of 0-40 and r is an integer having a value of 1-200 or T has the formula:



wherein a is 0 or 1, ~~Q is an organic moiety,~~ R^a is selected from -OH, $-NH_2$, -NR and -OR wherein R is a protecting group and b is an integer having a value of 0-40, and Q is a moiety having the formula:



wherein q, r, s, t and u are the same or different and each is an integer having a value of 0-40 and R^a is selected from the group consisting of hydrogen, hydroxyl, a C_1-C_{40} alkyl group, a C_5-C_{40} aryl group, a C_1-C_{40} alkoxy group, a C_1-C_{40} ester group, a C_1-C_{40} hydroxy-containing group, a C_2-C_{40}

acrylate-containing group, a C_5-C_{40} alkylaryl group, $-NH_2$, -NHR and -OR, wherein R is a protecting group, with at least one oligonucleoside base until an oligonucleotide having the desired sequence is produce;

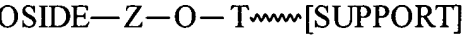
(ii) cleaving the oligonucleotide having the desired sequence to produce a free oligonucleotide have the desired sequence; and a used linker arm; and

(iii) recycling the used linker arm to Step (i).

186. (Previously Amended) The process defined in claim 185, wherein the used linker arm produced in Step (ii) has the formula:

wherein Z and T are as defined in claim 185.

187. (Previously Amended) The process defined in claim 185, wherein Step (iii) comprises the step of converting the used linker arm to a linker arm having the formula:



wherein Z and T are as defined in claim 185.